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언론정보학석사학위논문

**An application of the Integrative
Model of Behavior Prediction theory to
electronic cigarette prevention:**

Identifying promising message strategies

IMBP이론을 이용한 전자담배 금연연구:
효과적인 메시지 전략 찾기

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Abstract

This study examined the role of the Integrative Model of Behavior Prediction theory in electronic cigarette prevention of youths. Smoking has been always considered to impose serious harmful effects on individual's state of health. Besides individual level of loss, smoking a tobacco is one of social problems as well.

This study focused on a new type of cigarette recently threatens the well-being of public health even further: electronic cigarettes. After the electronic cigarette is introduced to the public and within a while, it extensively gains popularity. Although there are still no concrete scientific evidences on the long term effects of electronic cigarette and its safety, the population of users keeps growing so there is a great need of studying about this new device.

This study targeted to high school students because young students are certainly more vulnerable to electronic cigarettes than any other groups. The media has already spotted wide interest among youths and blamed the government for loose regulations of this new potential hazardous material especially for young ones. To adjust this phenomenon, communication research is important. Students are educated smoking prevention mostly via public health campaigns and this reconfirms the need of this study in the scope of communication because the key success of public health campaigns

is to change behavior. To enable that, the delivery of a message is critical and a message is certainly the core concept of communication studies.

Message strategy indicates what messages should be about, so it is more like an overarching idea of message. It is the process of choosing message content. It differs to the message itself which is the final outcome of campaign development. This study, therefore, concentrated on the content of public health campaign by applying the Integrative Model of Behavior Prediction theory which is the latest version of behavioral change theory.

This study was processed by two research phases. An elicitation study (phase 1) and followed by a population survey (phase 2) were conducted respectively. In the phase 1, participants were given an open-ended questionnaire to classify prominent behavioral beliefs. The questions are about underlying beliefs of three cognitions (attitudes, perceived social norms, and self-efficacy) which assumed directly to affect to behavioral intention. Phase 2 was a closed-ended questionnaire survey based on both data collected in the preceding phase (indirect measures) and preexisting survey questions (direct measures) to measure each components of the theory.

As a result, the study showed significant association between three cognitive constructs and behavioral intention. Among three cognitional beliefs, perceived social normative beliefs are the most significantly correlated to electronic cigarettes smoking intention. Based on these results,

the study explored efficient message strategies in relation to the Integrative Model of Behavior Prediction theory in the context of electronic cigarette usage by young students.

Keyword : Health Communication, the Integrative Model of Behavior Prediction theory, Electronic cigarette, Smoking prevention, Youths, Message Strategy

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Use of electronic cigarettes among young adults

Smoking has been always considered to impose serious harmful effects on individual's state of health. Besides individual level of loss, smoking a tobacco is one of social problems as well. Although smoking itself is an individual's action, unintentional harmful effects threat other people's health. Thus, many developed nations attempt to reduce number of smoking population in various ways for public good. For example, holding the WHO Framework Convention on Tobacco Control (WHO FCTC) to discuss about the issue, conducting public health campaigns to increase the public awareness, raising taxes on tobaccos, and so on (OECD, 2016). Indeed, the South Korea government introduced the bill called National Health Promotion Act in 2010 for national wide non-smoking movement. This particular act includes details such as designation of the public places in the city as non-smoking areas, strict restrictions on tobacco advertisements, and more public resources for smoking prevention programs (Ministry of Health, n.d.). Continuous efforts are poured into creating the social atmosphere which to encourage smoking preventions and it does show some effects because recent years the rate of smokers shows a tendency to decrease. However, the average percentage of smoking population (age above fifteen) in South Korea is 19.9% is still higher than the average rate of OECD (18.8%) (OECD, 2015). In other words, although the smoking rate has been

subsidized comparing to the past, the figure indicates the significant size of smoking population remains yet. Since smoking habit is a well-known cause of preventable illnesses which are in charge of more than 40,000 deaths such as respiratory diseases each year in South Korea. The consumption of tobacco needs to receive constant attentions by the government, the public health sector professionals and the scholars because it remains as the leading cause of health detriment of the public.

Lately, a new type of cigarette threatens the well-being of public health even further: an electronic cigarette. In 2003, Ruyan Group (Holdings) Limited first invented this device in China. The company patented it in Canada after four years (Hon, 2005). Electronic cigarettes are first reported in the press in 2004 and officially imported in South Korea, 2008 (Lee et al., 2011). The device resembles to a tobacco but it does not combust real tobacco leaves. Instead a plastic tube, an electronic heating element, a liquid nicotine cartridge, a lithium battery, and atomization chamber are comprised the device. It uses a replaceable cartridge which users may adjust the level of nicotine content, chemical additives, and flavors (Yamin, Bitton, & Bates, 2010).

An electronic cigarette is introduced to the public and within a while, it extensively gains popularity. This is truly an alarming phenomenon. For instance, traditional tobacco sales decreased 21% compared to 2014 in South Korea, but the market of electronic cigarette expanded enormously. It

worth from fifty billion dollars to seventy billion dollars and it is expected to grow more in the near future (Shin, 2015). The more the government enforces more constraints on tobacco use for the public good, the more people ironically turn to use electronic cigarettes due to its convenience, costs, and self-pleasure (Shin & Shin, 2015). The cost wise, when ever since the South Korea government raised the tax of tobacco (starting from 2015 January 1st), the overall cost of tobacco increased by 80% in a rough estimation. As a result, people tend to believe that electronic cigarettes are more cost-efficient. Lastly, the most concerning circumstance is that marketers and advertisers of electronic cigarettes abusively use unproven facts to lure the public. They embellished electronic cigarettes as an aid tool for smoking cessation or a tobacco without any harms (Kim et al., 2013). As the World health Organization (WHO) once suggested, there are still no concrete scientific evidences on the long term effects of electronic cigarette and its safety. There is growing number of contradicting researches outcomes on electronic cigarettes, implying that it does not reach a consensus yet (WHO, 2008).

There are two things to consider upon the use of electronic cigarettes. Does it really effective to help people stop smoking as advertisements typically said? Caponnetto and his fellow researchers conducted an experiment on its effect. Total 300 participants were separated into three groups. Each group of people received electronic cigarettes with

different percentage of nicotine cartridge at random basis. First group was assigned to use 7.2mg nicotine electronic cigarettes. Second group was instructed to use 7.2mg device first and later changed to 5.4mg one to smoke. Last group used electronic cigarettes with no nicotine for testing the placebo effect. Electronic cigarettes were given enough to participants for consumption during the time designed. A year after, the results showed 13% of first group, 9% of second group, and 4% of third group were succeed in smoking cessation. It suggested that only limited percentage of people were successfully quit smoking by using the electronic device (Caponnetto et al, 2013). This wrong belief may result the risk of dual use of traditional cigarettes and electronic cigarettes which is even more undesirable behavior that should be prevented. The second issue is the safety. There are news reports about explosion of the device and overuse or misuse of saturated liquid nicotine. Like this, electronic cigarettes still need to be figured out unproven safety aspects before introduced to the public. However when people are exposed to wrong beliefs of electronic cigarettes too much and their perceptions persist on optimism, it will be very difficult to change their views later on.

The WHO recommends that until conclusive evidences on the effects of electronic cigarettes are finalized, an electronic nicotine delivery system (ENDS) should be regulated strictly and not to be promoted in a sensational way (WHO, 2009). However, this new device causes more

confusion in reality among the public because of not only compounding empirical evidences, but also different regulations by each countries (Cho, 2013). In USA, electronic cigarettes are treated as a tobacco product (Cobb & Abrams, 2011) and in response to the recent rise of adolescents' users, it tightens the regulations on it. Whereas the sale of electronic cigarette is entirely banned in Australia, Canada, Singapore, and Brazil (WHO, 2009). In South Korea, the government decided to place electronic cigarettes under two separate government bodies depending on nicotine containment (Lee at el, 2011). If it has nicotine in the device, the Ministry of Finance (MOF) controls it. On the other hand, if it contains liquefied nicotine, it is regulated under the Korea Food and Drug Administration (KFDA). When MOF revised the Tobacco Business Act in 2010, they included electronic cigarettes as one of tobacco products. However, KFDA still categorized electronic cigarettes with no nicotine as a health supplement and named "electronic smoking desire reducers" (Lee at el, 2011). This ambiguity creates the confusion to the public. Although KFDA officially announced that its effects are not yet to be confirmed, the way of naming the device has potential to mislead the public.

Whether the electronic cigarette industry intends or not, young students are certainly more vulnerable to electronic cigarettes than any other groups. The paper's focus starts from here: Aggressive marketing activities based on unproven facts create delusional beliefs of electronic cigarettes to

adolescents. Hence there is urgency to rectify inaccurate beliefs. The media has already spotted wide interest among youths and blamed the government for loose regulations of this new potential hazardous material especially for young ones. Although the Ministry of the Gender Equality and Family (MOGEF) prohibited the sale of electronic cigarettes to underage students in 2011, they are still possible to buy electronic cigarettes via online. Besides, relatively reasonable price, peer pressure, attractive appearances, curiosity, and novelty are understood as key possible arguments that young adults' interest in electronic cigarettes (Lee et al, 2011). Many researches concern about the adolescents' use of electronic cigarettes (Lee et al, 2010; Cho, Shin, & Moon, 2011; Lee et al, 2011; Kim et al, 2013; Lee, Grana, & Glantz, 2013; Shin & Shin, 2015), but they partially highlight on young people's behaviors patterns and motivations. They simply scrutinized the phenomenon, but not in terms of behavioral change in specific. The behavioral change frame is important because misguided beliefs on electronic cigarette should be changed correctly to prevent them from potential harms of electronic cigarettes.

The Ministry of Health (MOH) has been carried out Korean Youth Risk Behavior survey over twelve years so far. It is the national online survey for students who are aged 13 to 18 (middle school to high school) and eight millions of samples are collected each time. The first survey began in 2005, and it is one of the official government statistics that conducted

every year. Especially in 2014, the special theme of the whole survey was to learn about young smokers' behavioral patterns and to develop possible smoking prevention strategies. The survey questions about electronic cigarettes were included since 2011. According to the press release in 2015, the rate of smoking adolescents is the lowest in the past ten years. Total 11.9% of male students and 3.2% of female students engage in smoking a traditional cigarette. Electronic cigarettes are practiced by 6.2% of male students and 1.5% of female students. Although the numbers do not seem so worrying, the dual use of both types of cigarettes is recognized as the crucial potential threat (MOH, 2015). Therefore the MOH announced that they would continue putting efforts into young adults' smoking prevention by implementing public health campaigns through active use of Social Networking Service (SNS). This reconfirms the need of this study in the scope of communication because the key success of public health campaigns is to change behavior. To enable that, the delivery of a message is critical and a message is certainly the core concept of communication studies.

Message strategy in public health campaigns

Public health practitioners often use mass media as a platform to advocate desirable behaviors and to prevent unhealthy behaviors (Hornik,

2002). Huge amounts of money, time, and human efforts are invested into campaign design. However, different approaches must be needed each time after careful analysis of a campaign's purposes, audiences, and scopes because those factors shape a key component of a campaign: message. Generally, depending on the message that the particular campaign implies, the whole landscape of campaign communication strategies change.

Randolph and Viswanath (2004) investigated how current health campaigns are designed, and what types of factors in planning stage which practitioners consider the most seriously through a thoughtful literature review. It showed that creating the persuasive messages before dissemination is one of the important factors. However, there are only few campaign messages crafted based on scientific theories. Although campaign practitioners perceive the utility of communication theories in message design stage, they employ the theories only if it is possible. In other words, the role of theory is not yet generally well-recognized in the field. In Korean studies, researchers admitted a lack of scientific approach in terms of campaign design as well. As more Koreans put emphasis on well-being life styles nowadays, public health campaigns should be received more attentions but there are no concrete evidence that whether these campaigns actually contribute to the public health (Choi, 2015). Since acquiring health information becomes easy, public health campaigns should not be a means to provide health information but rather to bring out desirable healthy

behaviors. They suggested the implication of social sciences theories, and behavioral change theories are one of possible options to improve quality of health campaigns (Hong, 2006; Kim, 2015).

Usually health campaigns aim for changing the information environment which maximizes exposure of target audiences to campaign messages and themes. Nonetheless the ultimate goal of campaigns is changing or reinforcing target behaviors among the public. Therefore, scholars emphasize understanding the determinants of health behavior is to achieve campaign's success because a message based on the analysis of psychological determinants is more likely to be persuasive than it is not (Fishbein et al, 2002). Furthermore, a campaign message is generally delivered via mass media. It is different from how traditionally a message communicates between actors. For example, when a teacher discusses about AIDS prevention in a classroom setting, a student can instantly respond to it – either raising questions or expressing worries – and a sender may give feedback spontaneously. However, mass media campaigns have a lack of feedback channels from audiences (Hornik & Woolf, 1999). Once a message is out, it is impossible to revise even if a mistake is found. Often public health campaigns are made out of limited resources, careful attention is required again in message design process. This is why choosing the “right” message is always critical in campaign development.

What is a message then? Message is the core idea of what a

campaign attempts to deliver to the population of interest. Capella suggests a message can be decomposed into topic (i.e., what the message is about), structural features (i.e., strategies and physical message aspects), and content (i.e., message effects) (Cappella, 2006). Communication researches are relatively extensive in terms of message structure and content, while message topic is not a popular research subject for researchers regardless its weight. This research hereby focuses on message topic selection, which is alternatively called as message strategy. Message strategy is defined as “the essential belief(s) that a message will be designed to impart” (Hornik & Woolf, 1999). Message strategy indicates what messages should be about, so it is more like an overarching idea of message. It is the process of choosing message content. It differs to the message itself which is the final outcome of campaign development.

As explained above, establishing an effective message strategy needs an integrative approach of both science and art (Cappella, 2006). This study aims to scientifically approach message strategy by using behavioral change theories in a public health campaign.

Behavioral change theory in health communication research and practice

Behavioral change theories offer a good guidance of understanding psychological determinants which either hinder or encourage a certain behavior. Although there are number of behavioral change theories, two major theories will be explained: Theory of Reasoned Action (TRA; Ajzen & Fishbein, 1980) and Theory of Planned Behavior (TPB; Ajzen, 1991). First, TRA provides a very basic theoretical framework of intention and behavior change prediction. TRA suggests an intention as the most important predictor of behavior change while social norms and attitude are a function of behavioral intention. TPB, which later has expanded from TRA, enhances explanatory power of behavior change by adding self-efficacy as an additional cognitive factor to predict behavioral intention. Finally, an Integrative Model of Behavioral Prediction (IMBP) has been updated from TPB, adding supplementary descriptions such as environmental constraints and individual's capabilities in terms of explaining the relationship between intention and behavior (IMBP; Fishbein, 2000). Human behavioral change is complex to be explained by a single variable. Several times there are situations when people do have intention to change their behaviors yet, they do not actually take the action. In these cases, responsibility of misbehavior is not on individuals'. Rather, environmental constraints or personal can be alternative explanations. Hence, it is reasonable to apply IMBP in this

research because it provides more vivid and all-rounded descriptions on behavioral change than TRA and TPB. Behavioral change theory researchers mostly implement cross-sectional surveys as a research method to test the mechanism.

There are two advantages when using the behavioral change theories. Firstly, it enables to explain why people do or do not engage in a particular behavior by weighing the three functions of behavioral intention (attitude, social norms, and self-efficacy) (Fishbein & Cappella, 2006). Comparing correlations between each psychological constructs and behavioral intention, it verifies to the strongest determinant of behavioral change. Secondly, this in turn, helps to develop an effective message strategy because specific underlying beliefs under the strongest determinant of behavioral intention enable to select promising message topics (Fishbein & Cappella, 2006). In other words, by analyzing the specific control beliefs, a message topic would be carefully selected to ensure audiences' behavioral intentions are influenced. For example, teenagers' ignorance of contraception has been problematic all the times. When a campaign decides practicing contraception by teenagers as the target behavior, and survey results turns out that there is a strong association between attitudes and behavioral intention. If among underlying beliefs of attitude, "use of condom seems uncool" is the strongest determinant of behavioral intention, a message strategy based on this finding would be more efficient to

persuade target audiences than a message based on self-efficacy.

Once possible message topic options are available, then they need

		Performance of the Recommended Behavior	
		No	Yes
Intention to perform the recommended behavior	No	Change outcome and normative and self-efficacy beliefs	Change outcome and normative and self-efficacy beliefs
	Yes	Improve skills Reduce environmental barriers	No intervention or maintain positive intention

Table 1: An intention-behavior 2X2 matrix

to be carefully judged in analysis process based on the three criteria as followed: (a) a strong association with a target behavior, (b) substantial number of people have possibility to change, and (c) any chance to modify people's belief (more like a judgmental call) (Hornik & Wolf, 1999). Possessing the entire three criteria ensures actual change behavior. The first two criteria could be easily explained by survey data. Yet, the last criteria needs beyond empirical evidences because sometimes it is challenging to change one's belief if it is learnt through direct experience. Fishbein and Yzer (2003) devises an intention-behavior 2X2 matrix to evaluate those criteria. It offers insights whether a person does or do not have intention to perform and whether a person do or do not take an action

upon behavior intention. Each cell in Table1 represents four possible situations to consider before making a final decision.

Since the purpose of behavior change theories is to predict a determinant of a specific behavior, they are frequently used in many domains of researches due to high practicality. The theories can provide empirical evidence to researchers and practitioners. Therefore it is effective to use behavioral change theories in health communication context, especially when aiming for persuading people to change or to reinforce a behavior of interest. Moreover, health communication campaigns which utilize behavioral change theories in developing message strategies is more likely to be effective than not considering it. (Randolph & Viswanath, 2004). Although, it is still possible to argue that developing message strategies based on behavioral change theories does not yield desirable behavioral changes (Byrne & Hart, 2009), yet many health communication studies recently attempt to employ behavioral change theories in developing persuasive message strategies (Dillard, 2011; Boudewyns & Paquin, 2011; Robbins & Niederdeppe, 2015; Lee et al, 2016; Brennan et al, 2017) because understanding the mechanism of the theories is still considered to be very crucial as a first step to explain human behavioral change.

The main objective of this study is to develop public health interventions which can successfully persuade young adults not to smoke electronic cigarettes. IMBP is used in this research as a theoretical guidance

to distinguish between young adults those who intend to quit electronic cigarette smoking and those who do not, while their underlying beliefs on electronic cigarettes will help to develop potential campaign messages.

The Integrated Model of Behavioral Prediction (IMBP)

In Figure 1, the model indicates that “a message does not directly affect attitudes, perceived norm, or self-efficacy” (Yzer, M., 2012). Rather a message influences people’s beliefs. Then beliefs, in turn, affect to attitudes, perceived norm, or self-efficacy. As the IMBP theory is the latest formulation of Fishbein and Azjen’s reasoned action approach, it postulates that intention, necessary skills and abilities, and no environmental restrictions may leads to behavior. However as previous version of behavioral change theories suggest, the IMBP also assume that attitude, perceived norm, and self-efficacy is three types of perceptions under intention.

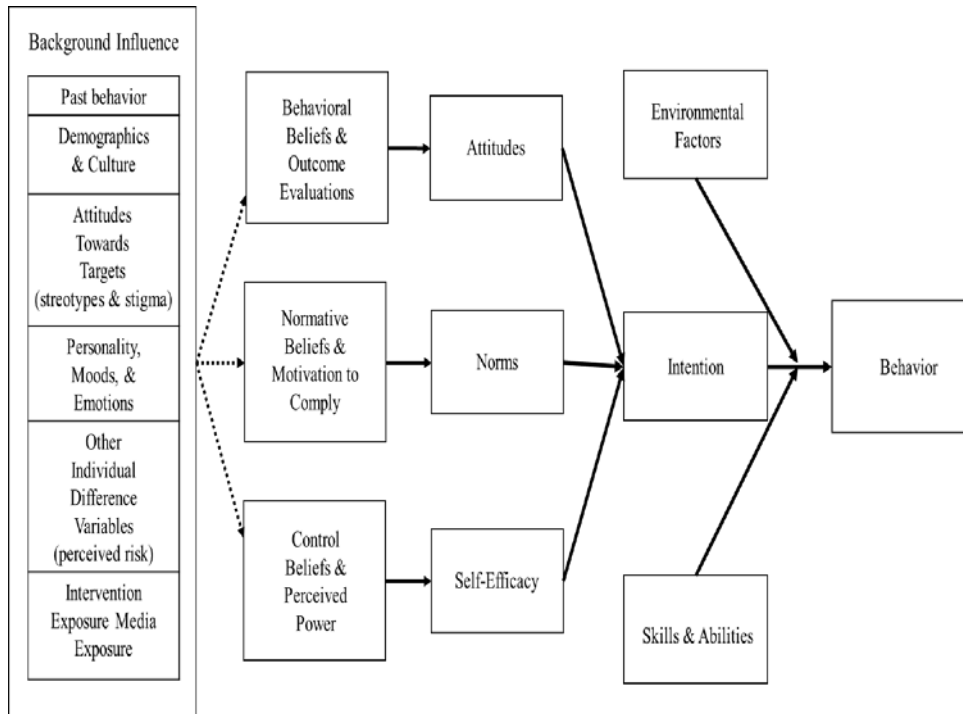
This study will compile both indirect and direct measures. This approach is consistently used by previous researches utilizing the IMBP in developing optimizing message strategies (Dillard, 2011; Boudewyns & Paquin, 2011; Robbins & Niederdeppe, 2015; Lee et al, 2016). Indirect measures are indices of prevailing beliefs of target audiences examined

thorough an elicitation study. However, since only small sample of people's responses are gathered, there is a tendency that it may not represent the whole landscape of target population. Thus direct measures which the three types of cognitions are gauged in-depth through existing measurements is to ensure the validity of data.

1) Behavioral intention and target behavior

The theoretical framework of the IMBP describes that beliefs of attitudes, norms, and self-efficacy contribute to behavioral intention which lead to behavioral change. Behavioral intention is the strongest determinant of behavior suggested by social psychologists, but sometimes skills and environmental factors may limit the strength of the relationship between intention and behavior. For example, communication strategies or communication interventions may not even function at all due to environmental constraints and personal capacities (Fishbein & Yzer, 2003). However, in most cases, the correlations between the three cognitions, intentions, and behavior need to be analyzed as the basis mechanism to understand human behavior.

Figure1: An Integrative Model of Behavioral Prediction



2) Attitude

Attitude towards a behavior can be predicted by assessing beliefs about the expected outcomes of a behavior (Feather, 1982). Those attitudinal beliefs can be either positive or negative. For instances, the more positive the attitudinal beliefs are, the more positive is the attitude towards a target behavior and vice versa. Likewise, optimistic attitudinal beliefs increase the tendency of engaging a target behavior whereas, pessimistic attitudinal beliefs decrease the tendency (Fishbein & Ajzen, 1975). Based on these assumptions, hypothesis 1 is followed:

Hypothesis 1 (H1): Attitude (indirect and direct measures) will be positively associated with behavioral intention and electronic cigarette smoking cessation.

3) Perceived social norms

Perceived social norms are another behavioral intention predictor. It delineates the standards of normality in a society or a culture. While TRA and TPB - the previous iteration of IMBP - only adopted perceived social norms for analysis, the IMBP specifies perceived social norms into injunctive norms and descriptive norms to increase accuracy (Fishbein & Yzer, 2003). Injunctive norms concern of what kinds of behavior would be approved or disapproved by others. On the other hands, descriptive norms indicate recognition of how people actually behave (Cialdini, Reno, & Kallgren, 1990). Although two types of norms are often intertwined, they have a conceptual distinction in terms of motivation (Deutsch & Gerard, 1955). Injunctive norms usually prohibit an action by imposing social sanctions, while descriptive norms allow an action by informing other's behavior. In sum, when people perceive that a particular behavior as socially acceptable (injunctive norms) and other people actually practice the behavior (descriptive norms), the overall likelihood of performing the behavior will increase. Hence, it is important to measure both categories of social norms. Based on these assumptions, hypothesis 2 is suggested:

Hypothesis 2A (H2A): Injunctive norms (indirect measures) will have a significant, positive association with behavioral intention and electronic cigarette smoking cessation.

Hypothesis 2B (H2B): Descriptive norms (indirect measures) will be positively associated with behavioral intention and electronic cigarette smoking cessation.

Hypothesis 2C (H2C): Perceived social norms (direct measure) will be positively associated with behavioral intention and electronic cigarette smoking cessation.

4) Self-efficacy

Last predictor of behavioral intentions is self-efficacy. Efficacy beliefs refer to one's capabilities and a sense of control to perform a certain behavior. Depending on a level of self-efficacy an individual hold, it may encourage or discourage its performance (Bandura, 1977). When the level of efficacy is high among people, there is higher chance of deriving a particular behavior change because their behavioral intentions are positive as well. Based on these assumptions, hypothesis 3 is offered:

Hypothesis 3 (H3): Self-efficacy (indirect and direct) will be positively associated with behavioral intention and electronic cigarette smoking cessation.

5) Indirect and direct belief measures

This research will be conducted via two phases of study. First, an elicitation study, using open-ended survey questions will be given to small

sample of target audiences to identify discrete behavioral beliefs according to attitudes, perceived social norms, and self-efficacy. Next, the most salient behavioral beliefs from Phase 1 will be taken into the closed-ended survey in Phase 2. An advantage of indirect measures is to capture distinct beliefs of populations within the three cognitions (attitudes, perceived social norms, and self-efficacy) and those beliefs can be a possible option for message content. Yet, data is only collected by small size of sample in a pilot study, it does not cover whole beliefs within the three cognitions. Direct measures of attitudes, perceived social norms, and self-efficacy, complement the limitation of indirect measures. Applying both indirect and direct measures of behavioral beliefs will allow rich descriptions and logical explanations of the relationships between constructs.

Furthermore, the following research questions are stated in the hope of being practical in the future study. Since the goal of this study is to provide a useful guidance of future anti-smoking campaigns for youth, specific beliefs can be selected for developing message strategies.

Research question 1 (RQ1): Which types of cognitions (attitudes, perceived social norms, or self-efficacy) will be the strongest predictor of intention and electronic cigarette smoking cessation?

Research question 2 (RQ2): Which specific underlying beliefs will have the strongest correlation with intention and electronic cigarette smoking cessation?

Research methods

As recommended by Fishbein and Azjen (2011), an elicitation study (phase 1) and followed by a population survey (phase 2) will be conducted. The target behavior of the study is the cessation of electronic cigarette smoking and the target population is high school students (aged 17 to 19).

In the phase 1, a small sample of the target population, roughly 30 students will be given an open-ended questionnaire to classify prominent behavioral beliefs. The questions are about underlying beliefs of three cognitions (attitudes, perceived social norms, and self-efficacy) which assumed directly to affect to behavioral intention. Participants are asked to freely answer those questions based on personal beliefs. This research method is designed by two renowned researchers, Fishbein and Azjen, they have been emphasized the role of an open-ended elicitation study to establish a list of salient beliefs about the behavior of interest being studied (Ajzen & Fishbein, 1980,).

In the following phase, a closed-ended questionnaire will be composed based on both data collected in the preceding phase (indirect measures) and preexisting survey questions (direct measures) to measure each components of the theory. The most frequent responses from the pilot study will be selected to be added in the closed-ended survey questions

along with belief strength measurements. The combination of indirect measures and direct measures will enhance the validity of the study overall. The closed-ended questionnaire will be distributed to a larger population of high school students via online.

Elicitation study (phase 1)

An open-ended elicitation study is conducted before distributing closed-ended questionnaires in phase 2 because to identify salient behavioral beliefs among target population. The core logic of this phase is that behavioral beliefs assume explaining more about people's behavioral intention because those underlying beliefs under attitudes, social norms, and self-efficacy which are the three main descriptions of intention. Hence, to determine underlying beliefs is crucial part of the Integrative Model of Behavior Prediction theory.

The elicitation study of this research was conducted at one of high school at Hanam-Si, Gyeonggi-do. Total 88 high school students (n=88, 49 female, 39 male, aged 17 years) participated in the studies. The open-ended questionnaire about electronic cigarette smoking was distributed to students at classroom and participants were asked to list down their thoughts accordingly.

The questionnaire was comprised of six open-ended questions. Two questions each for attitudes, social norms, and self-efficacy about electronic cigarettes were given. Advantages and disadvantages of consuming electronic cigarettes are asked to measure attitudinal beliefs, while social norms are questioned to verify key referents regarding consuming electronic cigarettes issues. Lastly, students are asked which factors enable or hinder consuming electronic cigarettes to yield self-efficacy beliefs.

After compiling 88 participants' responses, the researcher thematically categorized the answers to figure out the most frequently cited beliefs. Beliefs which were supported more than half of students were selected as salient beliefs first and most top three beliefs were taken into the closed-ended survey questionnaires. Few exceptions were made to include in the phase 2 questionnaire even though they do not meet the standard because to venture beyond typical context of smoking campaign based on the researcher's own judgement. For example, the researcher added "Public advertising and public education on electronic cigarettes makes difficult to smoke" as a hindrance under self-efficacy beliefs because the purpose of this paper is to suggest effective way of crafting a message of a public campaign. Anti-smoking campaign is very much influential area of public campaign domain and ultimately our desire is to reach target population efficiently – especially young ones – to prevent them smoking, examining actual impact of public education and public advertising in the paper. Table

1 showed a list of behavioral beliefs from phase 1.

Table 2: Behavioral Beliefs collected in Phase 1

<i>Types of behavioral beliefs</i>	<i>Beliefs</i>	<i>Frequency</i>
Attitudinal beliefs	1) Electronic cigarettes are less harmful in health than traditional cigarettes	43
	2) Electronic cigarettes have less harmful effects on secondhand smoking than traditional cigarettes	32
	3) Electronic cigarettes have high portability	30
	4) Electronic cigarettes are harmful to health	56
	5) Electronic cigarettes does not give a good impression	46
	6) Electronic cigarettes seems less intimidating so it becomes easily addictive	33
Perceived normative beliefs	1) Friends	61
	2) Parents	57
	3) Teachers	38
Behavioral control beliefs	1) It enables to smoke electronic cigarettes when it can be easily purchased	40
	2) Media exposure on electronic cigarettes enables to initiate smoking	35
	3) Price raise on electronic cigarettes makes difficult to smoke ¹	48
	4) Strick law on electronic cigarettes makes difficult to smoke	35
	5) Public advertising and public education on electronic cigarettes makes difficult to smoke	31

¹ In the process of crafting closed-ended question, the researcher put words in a wrong way. Hence this belief is removed in the analysis part.

Population survey (Phase2)

The close-ended questionnaires were constructed after thorough review of phase 1 results. 13 underlying beliefs were included as indirect measurements along with direct measures of attitudes, perceived social norms, self-efficacy, intention, and behavior. In total, 48 questions were included in the survey. The questionnaires were distributed online through EMBRAIN, the research company, and 190 high school students participated ($N = 190$). Respondents were not given any incentive for taking a part in the study by the researcher.

The composition of sample in terms of sex was almost even (Male students = 96, Female students = 94) and they were between 16 and 18. There were a range of high school years such as freshmen, juniors, and seniors. Seniors represented the highest proportion of the sample ($n = 75$), followed by juniors ($n = 68$), and freshmen ($n = 47$).

Attitudes

1) Direct measures

Three direct questions were to measure attitudes on electronic cigarettes smoking. Since attitudes are equivalent to an individual's

evaluation of performance, one of the question was “What do you think of smoking electronic cigarettes?” as the first guiding question. Also, two pairs of adjective such as pleasant – unpleasant and beneficial – harmful were included. All responses were accessed on a 5 point Likert scale from strongly agree (5) to strongly disagree (1) then recoded by subtracting three so that negative values stand for undesirable results and positive values stand for desirable results. (Cronbach’s $\alpha = .75$, $M = -1.03$, $SD = .76$)

2) Indirect measures

Six attitudinal beliefs were questioned while three beliefs were on favorable side (e.g., “electronic cigarettes are less risky to secondhand smoking than traditional cigarettes) and the rest were the opposite (e.g., “electronic cigarettes are harmful of health) to measure behavioral belief strength. Along with it, outcome evaluation of each belief was also asked (e.g., “how much do you agree with the following statement: electronic cigarettes are less harmful than traditional cigarettes). All responses were accessed on a 5 point Likert scale from strongly agree (5) to strongly disagree (1) then recoded by subtracting three so that negative values stand for undesirable results and positive values stand for desirable results. Each attitudinal belief composite score was calculated thereafter; multiplying by behavioral belief strength and outcome evaluation. However three out of six attitudinal beliefs had to be coded reversely to reflect the direction of the scale. The overall composite score was positive which indicates that the

participants' attitudinal beliefs were correlated to their smoking intention (Table 2).

Perceived social norms

1) Direct measures

Injunctive norms and descriptive norms need to be understood separately under the concept of perceived social norms. Thus questions were prepared respectively: two questions for injunctive norm (e.g., what do you think that your significant others allow you to smoke electronic cigarettes?) and one question for descriptive norm (e.g., do you think your significant others smoke electronic cigarettes?). All responses were accessed on a 5 point Likert scale from strongly agree (5) to strongly disagree (1) then recoded by subtracting three so that negative values stand for undesirable results and positive values stand for desirable results. (Cronbach's $\alpha = .66$, $M = -1.12$, $SD = .76$)

2) Indirect measures

In phase 1, participants were asked who will approve and disapprove of smoking electronic cigarettes by youth to find out their significant others. As a result, three key actors were verified (parents, teachers, and friends). They were someone who can be trusted in terms of

smoking electronic cigarettes. Based on these findings, each three survey questions were prepared for both types of social norms. For example, beliefs of injunctive norms were asked “Do you think your friends will support you to smoke electronic cigarettes?” to measure injunctive normative belief strength. On the other hand, beliefs of descriptive norms were phrased like “Do you think your friends are actually smoking electronic cigarettes?” to measure descriptive normative belief strength. Then, motivations to comply questions (e.g., “in terms of electronic cigarette smoking, how much do you want to do what your friends think you should do?”) were followed by injunctive social norm questions as well as identification with the referent questions (e.g., “in terms of electronic cigarette smoking, how much do you want to be like your friends?”) for descriptive norm. Composite scores were calculated by multiplying respective measurements. All responses were accessed on a 5 point Likert scale from strongly agree (5) to strongly disagree (1). then recoded by subtracting three so that negative values stand for undesirable results and positive values stand for desirable results. The overall composite scores for injunctive norms and descriptive norms indicate that participants believe that the participants’ normative beliefs were correlated to their smoking intention.

Self-efficacy

1) Direct measures

Similar to attitudes and perceived social norms, self-efficacy on electronic cigarettes smoking also directly accessed through three questions. Mainly self-efficacy questions were about an individual's perceived ability upon action. (e.g., "do you think smoking electronic cigarettes are up to you?") All responses were accessed on a 5 point Likert scale from strongly agree (5) to strongly disagree (1) then recoded by subtracting three so that negative values stand for undesirable results and positive values stand for desirable results. (Cronbach's $\alpha = .42$, $M = .13$, $SD = .82$)

2) Indirect measures

There were four behavioral control beliefs and two beliefs were enablers (e.g., "media exposure on electronic cigarettes makes easier for youth to smoke electronic cigarettes") while other two beliefs were barriers (e.g., "Public advertising and public education on electronic cigarettes makes difficult to smoke") to self-efficacy. The control belief strength and power of control factor (e.g., "do you think the price of electronic cigarettes is raised within a month?) of each belief were measured. The composite score of five behavioral control beliefs was calculated by multiplying control belief strength and power of control factor. All responses were accessed on a 5 point Likert scale from strongly agree (5) to strongly disagree (1) then recoded by subtracting three so that negative values stand for undesirable results and positive values stand for desirable results. The overall composite score was positive and significantly correlated to

behavioral intention.

Intention

Intention on smoking electronic cigarettes were measured with two direct items (e.g., “how much are you likely want to try smoking electronic cigarettes within a month?”) using a 5 point Likert scale. All responses were accessed on a 5 point Likert scale from strongly agree (5) to strongly disagree (1) then recoded by subtracting three so that negative values stand for undesirable results and positive values stand for desirable results. (Cronbach’s $\alpha = .73$, $M = -1.50$, $SD = .78$)

Behavior

Two questions were constructed for behavior directly. First, survey participants were asked whether they have ever been tried smoking electronic cigarettes before. If those who answered yes led to the second question and were asked about smoking frequency. (e.g., “if you tired electronic cigarettes before, how much do you often use within a month?”) For the participants who did not smoke electronic cigarettes ever, their missing values were given zero in the data processing. The response was accessed on a 5 point Likert scale from everyday usage (5) to never try

within a month (1). ($M = .23$, $SD = .69$)

Table 3: Descriptive statistics on indirect Behavioral Beliefs

	Behavioral belief strength (s) (Range -2 to 2)		Outcome evaluation (e) (Range 1 to 5)		Composite (s*e)		r with Intention	r with behavior
	M	SD	M	SD	M	SD		
Attitudinal beliefs								
Electronic cigarettes are less harmful in health than traditional cigarettes	-.34	1.27	2.65	1.17	.09	3.65	.22**	.23**
Electronic cigarettes have less harmful effects on secondhand smoking than traditional cigarettes	-.23	1.32	2.83	1.21	.46	4.02	.09	.12
Electronic cigarettes have high portability	.59	1.09	3.48	1.00	2.83	3.91	.09	.18*
Electronic cigarettes are harmful to health	-1.05	1.04	3.87	1.12	-4.32	4.41	.20**	.19*
Electronic cigarettes does not give a good impression	-.89	.98	3.61	1.04	-3.58	4.04	.17*	.24**
Electronic cigarettes seems less intimidating so it becomes easily addictive	-1.12	.94	3.90	1.07	-4.79	4.24	.26**	.22**
Composite Index of Attitudinal beliefs					-1.55	2.32	.30**	.34**

Behavioral belief strength (s) (Range -2 to 2)			Outcome evaluation (e) (Range 1 to 5)		Composite (s*e)		r with Intention	r with behavior
<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>r</i>	<i>r</i>
Injunctive normative beliefs								
Friends	-1.19	.95	1.88	1.06	-1.84	2.17	.38**	.23**
Parents	-1.56	.95	2.83	1.51	-4.39	4.15	.26**	.19**
Teachers	-1.54	.94	2.74	1.58	-4.17	4.21	.19**	.13
Composite Index of Injunctive normative beliefs								
					-3.47	2.89	.21**	.31**
Behavioral belief strength (s) (Range -2 to 2)								
<i>M</i>	<i>SD</i>		Outcome evaluation (e) (Range 1 to 5)		Composite (s*e)		r with Intention	r with behavior
<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>r</i>	<i>r</i>
Descriptive normative beliefs								
Friends	-.76	1.23	1.68	1.01	-1.34	2.57	.21**	.19**
Parents	-1.68	.77	2.57	1.60	-4.44	3.63	.25**	.15*
Teachers	-1.49	.95	2.39	1.45	-3.65	3.44	.17*	.18*
Composite Index of Descriptive normative beliefs								
					-3.12	2.39	.28**	.23**

	Behavioral belief strength (s) (Range -2 to 2)		Outcome evaluation (e) (Range 1 to 5)		Composite (s*e)		r with Intention	r with behavior
Behavioral control beliefs	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>r</i>	<i>r</i>
It enables to smoke electronic cigarettes when it can be easily purchased	.07	1.49	3.38	1.10	.79	5.43	.12	.11
Media exposure on electronic cigarettes enables to initiate smoking	-.33	1.24	3.32	1.06	-.57	4.45	.11	.04
Strick law on electronic cigarettes makes difficult to smoke	-.52	1.08	2.47	.97	-1.08	2.87	.17*	-.00
Public advertising and public education on electronic cigarettes makes difficult to smoke	-.51	1.05	2.71	.91	-1.11	3.19	.26**	-.04
Composite Index of Behavioral control beliefs					-.32	2.18	.23**	.04

Results

The IMBP suggested three constructs (attitudes, perceived norms, and self-efficacy) influence an individual's behavioral intention which will be eventually lead to actual performance. There are two ways of testing its mechanism – indirect and direct measure. As shown in Table 3, both measurements of the three constructs significantly correlated to behavioral intention and smoking behavior.

Attitudes Both indirect and direct measures proved its significance to intention ($\beta = .30$; $\beta = .26$; both $p < .05$) and smoking behavior ($\beta = .34$; $\beta = .32$; both $p < .05$). Attitudinal beliefs were generally correlated significantly to behavioral intention and behavior. Among six attitudinal beliefs, three beliefs (e.g., “electronic cigarettes are less harmful in health than traditional cigarettes”, “electronic cigarettes are harmful to health”, “electronic cigarettes seems less intimidating so it becomes easily addictive”) were more highly correlated to behavioral intention. In other words, participants believe that although electronic cigarettes seem less harmful to health compared to traditional cigarettes, they also well aware of its danger to health and addiction. The composite index of attitudinal beliefs was also significantly correlated to behavioral intention and smoking behavior ($\beta = .30$; $\beta = .34$; both $p < .05$). These results support for H1.

Perceived norms Direct measure of perceived norms had significant correlation to behavioral intention and smoking behavior ($\beta = .51$; $\beta = .38$; both $p < .05$). For indirect measures, injunctive norms and descriptive norms had strong correlations to behavioral intention and smoking behavior as well (Injunctive: $\beta = .31$; $\beta = .21$; both $p < .05$, Descriptive: $\beta = .28$; $\beta = .23$; both $p < .05$). Thus overall H2 is supported. This can be the answer to RQ1, overall perceived norms is the strongest predictor of behavioral intention among the three constructs. The three referents – friends, parents, and teachers – were significantly correlated to behavioral intention and smoking behavior. In other words, participants acknowledged that their significant others do not smoke electronic cigarette. Students were very influenced by their opinions because they trust their significant others. This is especially true to “friends” which was the strongest injunctive normative belief of all the above ($\beta = .38$; $\beta = .23$; both $p < .05$).

Self-Efficacy Behavioral control beliefs showed limited results compared to attitudinal and normative beliefs. Only one belief (e.g., “Public advertising and public education on electronic cigarettes makes difficult to smoke”) was significantly correlated to the behavioral intention ($\beta = .26$; $p < .05$) but has no effect to smoking behavior ($\beta = -.04$). Public advertising and public education enable students to control their smoking intention. However, the overall indirect measure and direct measure of self-efficacy showed positive correlation to intention. Yet self-efficacy does not seem

strongly correlated to smoking behavior, compared to attitudes and perceived norms. Thus H3 is partially supported.

Lastly, RQ2 is about identifying specific beliefs that have the strongest association with intention and smoking behavior. There are four strongly associated individual beliefs (“Electronic cigarettes seems less intimidating so it becomes easily addictive”); one attitudinal belief, two injunctive beliefs (“friends” and “parents”) and one self-efficacy belief (“Public advertising and public education on electronic cigarettes makes difficult to smoke”). Among these beliefs, students are found to be strongly affected by their friends.

Table 4:
Correlation matrix between indirect and direct measures, intention, and behavior

<i>Behavioral Belief</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
(1) Behavioral intention	-							
(2) Smoking behavior	.42**	-						
(3) Indirect attitude	.30**	.34**	-					
(4) Indirect injunctive norm	.31**	.21**	.22**	-				
(5) Indirect descriptive norm	.28**	.23**	.32**	.40**	-			
(6) Indirect self-efficacy	.23**	.04	.02	.03	.05	-		
(7) Direct attitude	.26**	.32**	.55**	.14*	.13	-.02	-	
(8) Direct perceived norms	.51**	.38**	.38**	.51**	.35**	.11	.52**	-
(9) Direct self-efficacy	.29**	.17*	.15*	.03	-.02	.12	.21**	.12

Discussion

This study uses the latest version of the Reasoned Action theory, the IMBP, to understand health behavior and intention, contributing the renowned tradition of health communication research. Especially in the context of smoking electronic cigarettes, this study approaches one of the chronic social/health problems among youth: non-smoking. Indeed, every health practitioners and government officials try to reduce young smoking populations. Nevertheless, aiming right targets, contexts, and message is always been complicated. Thus this current study tries to increase its efficiency by investigating the most suitable way of message strategy process. A two-phase research is designed to explore the IMBP's theoretical constructs and overall results show its significance.

The target population of this research is high school students because the press release based on Korean Youth Risk Behavior survey results in 2015 by the Ministry of Health, high school students tended to be more exposed and willing to smoking behavior than middle school students. There were possible explanations such as academic stress and affordability. Based on this statistical fact, this study focuses on high school students and the researcher gathered 88 students taking a part in phase 1 open-ended survey. The questionnaire contained six questions, and attitudes, perceived norms, and self-efficacy took two questions each. The purpose of Phase 1 survey is to gather underlying beliefs of attitudes, perceived norms, and self-

efficacy. As indicated in the IMBP model, those beliefs can be formed by individuals' various background factors. This enables to deepen our understanding of certain behavior and to verify particular reasons behind performances. Hence, Phase 1 was necessary to choose right context of message as a direct measure.

After coded every students' answers into several categories, six attitudinal beliefs, three key referents for perceived normative beliefs, and four behavioral control beliefs were finalized. However, during the process of changing beliefs into closed-ended questions, the researcher made a mistake and one behavioral control belief had to be omitted in the actual result ("Price raise on electronic cigarettes makes difficult to smoke"). Also, based on three key referents in Phase 1 survey, indirect perceived social norms questions were distinguished into injunctive and descriptive norms questions while direct perceived norms were measured as one construct. Hence total 49 questions - both indirect and direct measures of attitudes, injunctive norms, descriptive norms, and self-efficacy - were included in Phase 2 survey.

In general, Phase 2 survey results showed significant association between three cognitive constructs and behavioral intention. Both direct and indirect self-efficacy showed weak associations compared to attitudes and perceived norms but they still showed significance with intention. Perceived social norms were the strongest predictor to intention and electronic

cigarette smoking cessation and especially injunctive normative beliefs offered possible explanations.

In terms of message strategy, there are needs to examine each individual belief. Firstly, both direct and indirect attitudes were the significantly correlated to intention and smoking behavior. Three positive attitudinal beliefs and three negative attitudinal beliefs were given but one positive and two negative beliefs were found to be significant. Students were more aware of electronic cigarettes' adverse effects. "Electronic cigarettes seem less intimidating so it becomes easily addictive" was the most highly correlated belief of attitudes. Secondly, as mentioned above, direct perceived social norms were the strongest indicator of smoking intention. In specific, injunctive normative beliefs were more significantly correlated to intention than descriptive normative beliefs. "Friends" seemed to have strong effect on students. It showed that if close friends do not approve of smoking electronic cigarettes, their smoking intention decreases. This result reflects on 'peer pressure', a common phenomenon among youths. Lastly, only a single self-efficacy belief offered a significant association with smoking intention except actual behavior. Participants agreed on "public advertising and public education on electronic cigarettes makes difficult to smoke" and this insight could contribute to the importance of public advertising and public education. Although there are many controversies with the efficiency of mass campaigns, students

responded that more exposure on non-smoking, more their tendency to smoke decline. However every self-efficacy beliefs showed no association between smoking behaviors. One possibility is that when the study measured behavior, it only captured individuals' past behavior and its frequency. This leads to limitations of this research and what future research needs to improve on.

Health campaign designers could use these findings when they design a non-smoking electronic cigarettes campaign. Specific underlying beliefs could be possible message context. As Hornik and Woolf (1999) offered three insightful criteria on deciding the best beliefs, future studies have to examine each option carefully.

Limitations

Several limitations are made throughout the research. First, phase 1 survey participants were all high school students who were recruited by convenience method at the same school. Future work needs to gather data from random sampling method across time and space. Second, Phase 2 survey participants were only 190 high school students. The sample size was too small to yield statistical power. Future work needs to increase the sample size. Third, behavior was only measured by two direct questions in

the survey. They were only asked about past electronic cigarettes smoking behavior related to attitudes, perceived social norms, and self-efficacy. Future work needs to capture future behavior through longitudinal research.

Conclusion

Using the IMBP, this study applied and tested the theory into electronic cigarettes smoking context among youth. Providing quality health information to youth is very critical because not only preventing bad habits in early years, but also enlightening the importance of health. Youth are not usually interested in health simply because they are young. They do not think that their health conditions could be slowly deteriorated if they continue to perceive health is taken for granted. Youth are eager to take risk as well. Hence educating them is not enough; we need to know their core motivation behind actual behavior to steer their misbeliefs. This is why message strategy is crucial in campaign design. Overall, the study offers few possible observations in the context of electronic cigarette smoking in the hope of making practical health campaigns through strategic communication.

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Appendix A

<청소년들의 전자담배에 대한 인식 연구>

귀한 시간을 내어 본 설문조사에 참여해 주셔서 진심으로 감사 드립니다. 본 설문지는 청소년들의 전자담배에 대한 생각을 알아보기 위한 연구를 위해 제작된 것입니다. 연구의 모든 내용은 [비밀보호원칙] 통계법 제 13 조에 따라 익명성 보장을 위해 무기명으로 기록되며, 어떠한 개인정보와도 연결되지 않습니다. 각 질문에는 특별한 정답이 있는 것이 아니니, 귀하의 생각을 있는 그대로 답하여 주시기 바랍니다. 설문조사의 결과는 학문적 연구 외의 어떠한 목적으로도 사용되지 않을 것입니다. 설문 시작과 동시에 귀하는 자발적으로 본 연구에 동의하는 것이 되며 귀하는 연구에 대한 참여 거부 및 중단 결정을 할 수 있습니다. 즉 연구에 참여함에 있어 어떠한 강요 혹은 압력도 없음을 알려 드립니다. 감사합니다.

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※모든 질문들에 대해 자유롭게 생각나는 대로 답변을 나열해 주시면 됩니다.

1. 자신이 생각하기에, 청소년들이 전자 담배를 사용하는 것이 어떠한 장점을 갖고 있다고 생각합니까?

2. 자신이 생각하기에, 청소년들이 전자 담배를 사용하는 것이 어떠한 단점을 갖고 있다고 생각합니까?

3. 자신이 생각하기에, 어떤 사람들이 청소년들이 전자 담배를 사용하는 것에 대해 찬성하고 지지해줄 것이라고 생각합니까?

4. 자신이 생각하기에, 어떤 사람들이 청소년들이 전자 담배를 사용하는 것에 대해 반대하고 지지하지 않을 것이라고 생각합니까?

5. 자신이 생각하기에, 어떤 요소나 상황들이 청소년들로 하여금 전자 담배 사용을 가능하게 하거나 촉진한다고 생각합니까?

6. 자신이 생각하기에, 어떤 요소나 상황들이 청소년들로 하여금 전자 담배 사용을 어렵게 하거나 불가능하게 한다고 생각합니까?

수고하셨습니다. 설문 조사에 참여해 주셔서 감사합니다.

Appendix B

설 문 지

IMBP 이론을 이용한 청소년의 전자담배에 대한 인식 연구

귀한 시간 내어 연구를 위한 설문조사에 참여해 주셔서 진심으로 감사 드립니다. 본 설문은 IMBP 이론을 이용한 청소년의 전자담배에 대한 인식 연구입니다. 연구의 모든 내용은 [비밀보호원칙] 통계법 제 13 조에 따라 익명성 보장을 위해 무기명으로 작성되며, 어떠한 개인정보와도 연결되지 않습니다. 각 질문에는 특별한 정답이 있는 것이 아니니, 귀하의 생각을 그대로 답하여 주시기 바랍니다. 연구에 사용되는 데이터는 학문적 연구 외에 어떠한 목적으로도 사용되지 않습니다. 설문 시작과 동시에 귀하는 자발적으로 본 연구에 동의하는 것이 되며 귀하는 연구에 대한 참여 거부 및, 중단 결정을 할 수 있는 권리를 가지고 있습니다. 본 연구동의서는 연구의 목적을 소개해 드리고자 함이며 참여하는 데 있어 어떠한 강요 및 압력도 없음을 알려 드립니다. 고맙습니다.

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1. 귀하는 전자담배에 대해 들어본 적이 있습니까?

1. 귀하는 전자담배에 대해 들어본 적이 있습니까?

예 1

아니오 2

2. 귀하의 성별은 무엇입니까?

남자 1

여자 2

3. 귀하의 나이는 어떻게 되십니까?

만-----세

고등학교-----학년

4. 귀하는 전자담배를 사용하는 것에 대해 어떻게 생각하십니까?

매우 나쁘다				매우 좋다
1	2	3	4	5

5. 귀하는 전자담배를 사용하는 것이 인체에 이롭다고 생각하십니까?

매우 해롭다				매우 이롭다
1	2	3	4	5

6. 귀하는 전자담배를 사용하는 것이 유쾌한 경험이라고 생각하십니까?

매우 불쾌하다				매우 유쾌하다
1	2	3	4	5

7. 귀하는 전자담배가 일반담배에 비해서 건강에 덜 해롭다고 생각하십니까?

매우 그렇지				매우 그렇다
--------	--	--	--	--------

않다				
1	2	3	4	5

8. 귀하는 전자담배가 일반담배에 비해서 간접흡연의 피해가 적다고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

9. 귀하는 전자담배가 휴대하기 편리하다고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

10. 귀하는 담배의 한 종류인 전자담배가 건강에 해롭다고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

11. 귀하는 전자담배 사용이 타인에게 부정적인 인상을 줄 수 있다고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

12. 귀하는 전자담배에 대한 낮은 경각심으로 인해 더 큰 중독이 될 수 있다고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

13~18. 다음의 문장들을 읽고 이에 얼마나 동의하는지 응답해주세요.

	매우 부정적이다				매우 긍정적이다
13. 일반담배에 비해서 전자담배는 건강에 덜 해롭다	1	2	3	4	5

14. 일반담배에 비해서 전자담배는 간접흡연의 피해가 적다	1	2	3	4	5
15. 전자담배는 휴대성이 좋다	1	2	3	4	5
16. 전자담배는 건강에 해로울 수 있다	1	2	3	4	5
17. 전자담배는 타인에게 부정적 인상을 심어줄 수 있다	1	2	3	4	5
18. 전자담배는 낮은 경각심으로 인해 더 큰 중독이 될 수 있다	1	2	3	4	5

19. 귀하에게 중요한 사람들이 귀하가 전자담배를 사용하는 것에 대해 어떻게 생각할 것 같습니까?

매우 지지하지 않는다				매우 지지한다
1	2	3	4	5

20. 귀하에게 중요한 사람들이 귀하께서 전자담배를 사용하는 것을 권장할 것 같습니까?

매우 권장하지 않는다				매우 권장한다
1	2	3	4	5

21. 귀하께서 느끼기에 귀하에게 중요한 사람들이 전자담배를 사용하고 있을 것이라고 생각합니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

22. 귀하는 친구가 귀하께서 전자담배 사용하는 것을 지지할 것이라고 생각하십니까?

23. 전자담배 사용에 관하여, 귀하께서 친구의 의견에 따라 행동할 것입니까?

24. 귀하는 친구가 전자담배를 사용하고 있다고 생각하십니까?

25. 전자담배 사용에 관하여, 귀하께서는 얼마나 친구를 닮고 싶습니까?

번호	매우 그렇지 않다				매우 그렇다
	1	2	3	4	5
22					
23					
24					
25					

26. 귀하는 부모님이 귀하께서 전자담배 사용하는 것을 지지할 것이라고 생각하십니까?

27. 전자담배 사용에 관하여, 귀하께서 부모님의 의견에 따라 행동할 것입니까?

28. 귀하는 부모님이 전자담배를 사용하고 있다고 생각하십니까?

29. 전자담배 사용에 관하여, 귀하께서는 얼마나 부모님을 닮고 싶습니까?

번호	매우 그렇지 않다				매우 그렇다
	1	2	3	4	5
26					
27					
28					
29					

30. 귀하는 선생님이 귀하께서 전자담배 사용하는 것을 지지할 것이라고 생각하십니까?

31. 전자담배 사용에 관하여, 귀하께서 선생님의 의견에 따라 행동할 것입니까?

32. 귀하는 선생님이 전자담배를 사용하고 있다고 생각하십니까?

33. 전자담배 사용에 관하여, 귀하께서는 얼마나 선생님을 닮고 싶습니까?

번호	매우 그렇지 않다				매우 그렇다
----	-----------	--	--	--	--------

호	지 않다				다
	1	2	3	4	5
30					
31					
32					
33					

34. 귀하가 원한다면, 언제든지 전자담배를 사용할 수 있다고 생각하십니까?

매우 불가능하다				매우 가능하다
1	2	3	4	5

35. 귀하가 느끼기에 전자담배 사용은 전적으로 귀하에게 달려있다고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

36. 만약 귀하께서 전자담배를 사용한다면, 스스로 조절이 가능하다고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

37. 귀하는 한 달 내로 길거리에서 전자담배 상점을 볼 것이라고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

38. 귀하는 길거리에서 전자담배 상점을 자주 보는 것이 전자담배 사용을 쉽게 만든다고 생각하십니까?

매우 어렵게 한다				매우 쉽게 한다
1	2	3	4	5

39. 귀하는 한 달 내로 미디어나 광고에서 전자담배를 볼 것이라고 생각하십니까?

까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

40. 귀하는 미디어나 광고에서 전자담배를 보는 것이 전자담배 사용을 쉽게 만든다고 생각하십니까?

매우 어렵게 한다				매우 쉽게 한다
1	2	3	4	5

41. 귀하는 한 달 내에 전자담배 가격이 인상될 것이라고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

42. 귀하는 전자담배 가격의 인상이 전자담배 사용을 쉽게 만든다고 생각하십니까?

매우 어렵게 한다				매우 쉽게 한다
1	2	3	4	5

43. 귀하는 한 달 내에 전자담배에 대한 법적인 제제가 강해질 것이라고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

44. 귀하는 전자담배에 대한 강력한 법적인 제제가 전자담배 사용을 쉽게 만든다고 생각하십니까?

매우 어렵게 한다				매우 쉽게 한다
1	2	3	4	5

45. 귀하는 한 달 내에 전자담배에 관한 공교육이나 공익광고를 접할 것이라고 생각하십니까?

매우 그렇지 않다				매우 그렇다
1	2	3	4	5

46. 귀하는 전자담배에 관한 공교육이나 공익광고가 전자담배 사용을 쉽게 만든다고 생각하십니까?

매우 어렵게 한다				매우 쉽게 한다
1	2	3	4	5

47. 귀하는 전자담배를 한 달 내에 사용해 볼 의향이 있습니까?

매우 그렇지 않다				매우 그렇 다
1	2	3	4	5

48. 만약 가능하다면, 귀하는 어느 정도의 확률로 전자담배를 사용할 것 같습니까?

매우 그렇지 않을 것이다				매우 그럴 것이 다
1	2	3	4	5

49. 귀하는 전자담배를 한번이라도 사용해본 적이 있습니까?

사용 해봤다 1

사용하지 않았다 2

50. 귀하께서 전자담배를 사용해 봤다면, 지난 한 달 간 얼마나 자주 사용했습니까?

사용하지 않았다	드물게 사용했다	가끔 사용했다	종종 사용했다	매일 사용했다
1	2	3	4	5

국문 초록

An application of the Integrative Model of Behavior Prediction theory to electronic cigarette prevention:

Identifying promising message strategies

황 경 진

서울대학교 언론정보학과

본 연구는 IMBP 이론을 이용하여 고등학생들의 전자담배 흡연예방에 대해 살펴보았다. 흡연은 개인의 건강을 해치는 주범 중 하나로 간주되어 왔다. 뿐만 아니라, 개인의 건강을 넘어 사회문제로까지 이어질 수 있는 중요한 사안으로 여겨져 왔다.

본 연구는 공공의 건강을 해칠 수 있는 새로운 형태의 담배에 대해 연구하였다. 아직까지 확실한 과학적 사실이 없음에도 불구하고 전자담배가 대중들에게 소개되고 얼마 지나지 않아 급속도로 확산되었기 때문에 관련 연구가 필요하다고 생각되었기 때문이다.

본 연구는 고등학생들을 대상으로 진행되었는데 그 이유는 다른 계층의 사람들보다 좀 더 보호가 필요하다고 판단되었기 때문이다. 미디어에서는 이미 청소년들의 전자담배 흡연양상에 대해 문제를 제기하며, 정부의 안일

한 대처에 대해서 우려를 표하고 있다. 이러한 현상을 토대로 학생들이 주로 접하는 금연 공익광고 캠페인, 즉 커뮤니케이션 연구를 통해 다루어보고자 하였다.

메시지 전략은 메시지가 전하고자 하는 내용을 찾는 일련의 과정을 일컫는다. 본 연구에서는 최신 행동 변화 이론인 IMBP이론을 이용하여 효과적인 전자담배 금연 메시지 내용을 찾아보고자 한다. 본 연구는 두 가지 연구 방법으로 설계되었다. 첫 번째 연구에서는 고등학생들에게 전자담배의 관한 태도, 사회 규범, 자기효능감에 대한 자신의 생각을 나열하게 하였다. 이 결과를 바탕으로 구성된 서베이 문항으로 두번째 객관식 설문을 진행하였다.

연구 결과는 IMBP이론에 따라 태도, 사회 규범, 자기효능감은 모두 전자담배 흡연 의지와 높은 상관관계를 가졌다. 특히 그 중에서도 사회 규범이 설문 참가자들에게 가장 큰 영향을 미치는 것으로 파악되었다. 이러한 결과들을 바탕으로 전자담배 공익 캠페인의 효과적인 메시지 전략을 짚어보고자 하였다.

주요어: 헬스커뮤니케이션, IMBP 이론, 전자담배, 흡연예방 및 금연교육, 고등학생, 메시지 전략

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